

# MTUS: Delayed Recovery, Early Intervention & Functional Restoration

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# The CA MTUS

“A Work in Progress”

# 2003

- CA legislature charged the DWC AD with adopting a Medical Treatment Utilization Schedule (MTUS)
- Presumed correct on extent and scope of treatment to cure or relieve

# ACOEM “Guidelines”

- Occupational Medicine Practice Guidelines:  
Evaluation and Management of Common  
Health Problems and Functional Recovery of  
Workers, 2004, 2nd edition

**Formed basis of MTUS**

# A Fundamental Problem:

- In CA, updates to external publications (e.g., ACOEM “Guidelines,” or others) cannot be incorporated automatically into the MTUS (illegal delegation of authority to an external party)

# The DWC Answers:

- Create Medical Evidence Evaluation Advisory Committee ( MEEAC )
- Change MTUS format to facilitate timely updates

# MEEAC

- Appointed
- Multispecialty
- Advisory
- Responsible for ongoing evaluation of EBM

# MEEAC

- Advises AD on “best practices” and timely revisions of MTUS, then
- Adoption or rejection by AD, then
- Public comment and rule-making



# The Current MTUS includes:

- ACOEM Treatment Guidelines, 2<sup>nd</sup> Ed.
- Acupuncture Guidelines (Colorado)
- **AND,**

Effective 7-18-09

- **Chronic Pain** (REVISION, replaces ACOEM Ch.6 )
- **Post-Op Rehabilitation** (NEW)
- Elbow (UPDATE)

# Chronic Pain Guidelines

- A unique CA hybrid Guideline:
- **Introduction** (current, best thinking on prevention and management of Chronic Pain)  
and
- **ODG CP Guidelines** (revised, alphabetical list of available treatments)

# Introduction

“Models of Care” reviewed, to

- provide treaters the conceptual framework to understand past/present pain treatment, and establish parameters for reasonable outcomes and acceptable, EBM standards of care.

# Introduction

Definitions, and concepts presented include:

- “risk stratification”
- “delayed recovery”
- “early intervention,” and
- Functional Restoration

# Risk Stratification

- Confounding “psychosocial variables” exist
- Early identification of “at risk” population is possible

# Delayed Recovery

- is predictable and inevitable without intervention
- Effective management is timely, multidisciplinary, coordinated and functionally oriented, with goal of independent self-management

# Functional Restoration

“...the process by which the individual acquires the skills, knowledge and behavioral change necessary to avoid preventable complications and assume or re-assume primary responsibility (‘locus of control’) for his/her physical and emotional well-being post injury.”





# Protracted Work Absence

- Continuation in “sick role” with assumption of unnecessary risk
- Loss of self-confidence
- Financial insecurity
- Familial/Social disruption
- Deterioration in work relationships/loss of work

# **Protracted Work Absence**

- Increased Stress, Depression
- Medicalization – becoming a professional patient
- Delayed Recovery
- Downward spiral of disability and dysfunction
- Development of anger and entitlement

# Delayed Recovery Characteristics

- Loss of “locus of control”
- Results in functional decline, drug dependency, depression/anxiety and chronic pain
- **Disability** is out of proportion to **impairment**
- Largely preventable
- **Predictors** have been identified

# Scope of Delayed Recovery

- This subpopulation of IWs represents:

An estimated minimum **10%** of CA WC cases,  
consuming **75%** of medical/indemnity  
resources

# Factors that Help Identify At-Risk Patients

1. Those unresponsive to conservative therapies demonstrated to be effective for specific diagnoses;
  2. Significant psychosocial factors negatively impacting recovery;
  3. Loss of employment or prolonged absence from work;
  4. Previous history of delayed recovery or rehabilitation;
  5. Lack of employer support to accommodate patient needs; and
  6. A history of childhood abuse (verbal, physical, mental)
- Of these factors, lost time from work has the highest value in predicting those patients who will experience delayed recovery

# Factors for Delayed Recovery

- Loss of employment or prolonged work absence
  - highest value in predicting delayed recovery
- Previous history of delayed recovery or rehabilitation
- Lack of employer support to accomodate patient
- Psychosocial Risk Factors
  - The elephant in the room!

# Predictors of Delayed Recovery

- Include:
  - distress, depression, anxiety
  - excessive pain/disability behaviors
  - high pain ratings
  - fear-avoidance/maladaptive beliefs
  - focus on litigation
  - somatization
  - job dissatisfaction



# Predictors of Delayed Recovery

- Physicians who
  - Rely on a traditional medical model
  - Focus on pathology not the patient
  - Find the pathology (pain generator) and mask it with medications, blast it with procedures or take it out with surgery
- Many physicians and lay people do not understand that there is not always a correlation between findings and disability

# Dynamics of Delayed Recovery

- Most individuals accept some physical discomfort as a part of living, some cannot
- Psychologically and/or socially stressed individuals more frequently seek medical attention
- They can be “cure-focused” with a sense of entitlement

# Delayed Recovery

- They seek medical verification as an explanation of their distress
- A medically acceptable diagnosis permits sublimation of psychosocial issues, and transfer of the “locus of control”
- The claimant becomes a high user of medical services, submitting to all interventions offered
  - Many well-meaning MDs are happy to accommodate them with pills, tests & procedures

# Early Identification

- Patients not responding to conservative therapy
- Those thought to be at risk for delayed recovery
- Consider simple screening devices to identify those at risk for delayed recovery
  - Örebro Musculoskeletal Pain Questionnaire
  - The Pain Disability Questionnaire (PDQ)

# Treatment Goals

- Provide each patient with education and a range of tools that can help them confidently and more effectively manage pain
- Increase the person's sense of emotional well-being and independence
- Improve relationships and return to self-sufficiency and a normal lifestyle

# Functional Restoration Approach

- Multiple treatment modalities,
  - pharmacologic,
  - interventional,
  - psychosocial/behavioral,
  - cognitive, and
  - physical/occupational therapies)
- are most effectively used when undertaken within a coordinated, goal-oriented, functional restoration approach

# Functional Restoration Treatment

- All therapies are focused on the goal of functional restoration rather than merely the elimination of pain
- Assessment of treatment efficacy is accomplished by functional improvement
- Win-Win situation
  - IW returns to life activities including work, stabilized medically, and avoids iatrogenic complications
  - Employer avoids unnecessary costs and has return of able employee

# Summary

- While biologic mechanisms play a role in the perception of pain, it is also important to recognize that psychological and environmental factors are important



# Summary

- Early identification of injured workers prone to delayed recovery to avoid chronic pain syndrome
- Avoid
  - Prolonged work absence
  - Passive treatment approaches
  - Long term opioids
- Encourage
  - Early RTW
  - Active treatment approaches
  - Education
  - Locus of control with injured worker
  - Communication
- Seek
  - Physicians who practice quality medicine and follow MTUS

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## Functional Restoration

*The following article is abstracted from an upcoming book chapter to be published by the American Academy of Pain Medicine (AAPM). The authors are Steven Feinberg, MD; Steven Stanos, DO; Robert Gatchel, PhD; Rachel Feinberg, PT, DPT; and Valerie Johnston, PhD.*

### Overview: Pain Rehabilitation through Restoring Function

Throughout history, the treatment of chronic pain conditions has been difficult, time consuming, expensive and all too often, unsuccessful. Many modes of treatment, both invasive (surgery, procedures, injections), and non invasive (medications, physical therapy, counseling, applications of heat, ice, electricity, and many others), have been used by the medical profession in an attempt to eliminate pain and return these patients to a productive, fulfilling life, but all too frequently, these attempts resulted in failure.

An alternate and proven effective approach is chronic pain rehabilitation or functional restoration (FR). This approach is a patient-centered, whole-person, team approach which focuses on helping patients achieve individual goals, which enable them to improve physical and psychosocial function, decrease pain, and improve quality of life.

By working together, the FR rehabilitation team helps patients achieve better outcomes than those achieved by an individual practitioner or interventions in isolation. Basic treatment goals of early and chronic pain FR rehabilitation programs focus on functional improvement, improved abilities in performing activities of daily living (ADLs), returning to leisure, sport, and vocational activities, and improved pharmacologic management of pain and related affective distress.

The goals of treatment include:

- Functional improvement
- Pain management
- Improvement in Activities of Daily Living
- Relevant psychosocial improvement
- Rational pharmacologic management (analgesia, mood, and sleep)
- Return to leisure, sport, work or other productive activity.

## **The Biomedical versus the Biopsychosocial Model**

The experience of pain is a complex phenomenon and multiple models have evolved over time to explain it. Traditionally, the Biomedical Model explained pain through etiologic factors (e.g. injury) or disease whose pathophysiology resulted in pain. Over time it became clear that this classic biomedical approach to understanding and treating pain was incomplete. Its exclusive application often results in unrealistic expectations on the part of the physician and patient, inadequate pain relief, and excessive disability in those with pain that persisted well after the original injury had healed.

The Biopsychosocial Model recognizes that there are a number of factors affecting each individual including 1) biological, 2) sociological, 3), environmental, 4) cultural and, 5) psychological. In contradistinction to the Biomedical Model, this model recognizes instead that pain is ultimately the result of the pathophysiology plus the psychological state, cultural background/belief system, and relationship/interactions with the environment (workplace, home, disability system, and health care providers). To put it more simply, to treat the pain, the whole person needed to be attended to.

## **Applying a Biopsychosocial Model to Pain Rehabilitation**

The biopsychosocial model of diagnosis and treatment operates on the idea that illness and disability is the result of, and influences diverse areas of an individual's life, including the biological, psychological, social, environmental and cultural components of their existence. In individuals with chronic pain conditions, the pain continues past the time the initial injury has healed. There are numerous challenges and issues that the patient faces and that must be addressed. These include: guarding of the injured area, fear of movement and reinjury, adoption of the sick role, along with cultural beliefs about pain, the loss of productivity, a decrease in beneficial leisure activities, the loss of income and change in the role and responsibilities within the family and the community at large.

There are several factors which identify those individuals at risk for transitioning from an acute pain episode to a chronic pain condition. These factors are, 1) unresponsiveness to traditional therapies normally effective for that particular diagnosis, 2) considerable psychosocial factors which negatively influence recovery, 3) unemployment or lengthy absence from work, 4) history of prior delayed recovery or rehabilitation, 5) the employer is not supportive or accommodative of the needs of the individual and, 6) history of childhood abuse: verbal, physical or mental. Of the previous factors, lost time from work is the most predictive of those who will encounter delayed recovery.

All chronic pain patients start with an acute pain episode, and when a delayed recovery is recognized, the diagnosis and treatment approach should be reconsidered. At this time psychosocial risk factors should be identified and the patient either treated by the attending physician or specialist using a biopsychosocial approach or when appropriate, referred to a functional restoration (FR) chronic pain program. A treatment plan addressing the presenting symptoms and attendant risk factors delaying recovery can then be developed and implemented. With a diagnosis of delayed recovery, a program solely focusing on the individual's biomedical condition, a program that does not address the complex requirements inherent in delayed recovery may not be efficacious.

Individuals at risk of developing chronic pain conditions, as evidenced by lack of progress toward healing, and a return to normalcy, are benefited by a multidisciplinary FR program. Physical and psychological interventions can be employed before the disability becomes chronic. Early intervention minimizes long term treatment costs, and the negative physical, psychological and sociological effects of disability, and restores the individual to an optimal level of functioning. Many times a purely biomedical

model continues to be applied, focusing more narrowly on reversing or eliminating nociception, the pain generator, and is more cure focused. The biomedical model ignores or minimizes psychosocial factors, and the more complex central changes in the nervous system (i.e. sensitization of tissue, pathways, and neurochemical changes related to affective distress), which not surprisingly results in treatment failure.

## **The Functional Restoration Approach**

Functional Restoration is an evidence-based, empirically proven treatment approach emphasizing physical activity and psychological therapy which anticipates an individual's gradual progression to a normal lifestyle. FR programs emphasize a multidisciplinary, biopsychosocial approach in which physicians, psychologists, occupational and physical therapists, along with therapists specializing in other relaxation techniques, all work in concert with each other, developing and implementing treatment plans individualized to fit each patient's needs. These programs are considered to be the treatment of choice for chronic conditions; particularly chronic pain conditions (DWC Medical Treatment Utilization Schedule [MTUS] Chronic Pain Medical Treatment Guidelines). These programs are shown to be both cost effective and efficacious in treating chronic pain conditions and restoring a patient to a productive lifestyle.

Elements of FR treatment include quantification of physical deficits on an ongoing basis, psychosocial and socioeconomic assessment used to individualize and monitor progress, and an emphasis on reconditioning of the injured area or body part. The team centered FR approach also includes generic simulation of work or activity, disability management with cognitive-behavioral approaches, psychopharmacologic management focusing on improving analgesia, sleep, and affective distress, and in many cases detoxifying patients from medications.

Individually tailored, these programs initially emphasize moderate physical interventions (i.e., stretching, strengthening, conditioning), gradually progressing to more active, strenuous therapies with the goal of obtaining maximum rehabilitation and normalization in all facets of a person's lifestyle, including a return to work, improving socioeconomic factors and self esteem, and psychological therapy addressing beliefs about pain, the resulting dysfunction, and environmental and socioeconomic factors.

Team members are able to communicate and consult with other team members on an ongoing basis, facilitated by regular, face-to-face meetings. The interdisciplinary model provides practical strategies for assessing and treating pain related deconditioning, psychosocial distress, and socioeconomic factors related to disability. An interdisciplinary team model is characterized by team members working together for a common goal, making collective therapeutic decisions, having face-to-face meetings and patient team conferences, facilitating communication and consultation. Importantly, in this model, team members possess a combination of skills that no single individual demonstrates alone.

In general, formal interdisciplinary programs vary in intensities, and may include 3-8 week, 4 to 8 hours per day programs with tailored group and individual therapies usually provided in an outpatient or, less often, in an inpatient hospital setting. Long term follow up studies of interdisciplinary treatment programs have demonstrated improved return to work rates, pain reduction and quality of life.

In special situations, an inpatient functional restoration program may be indicated. Inpatient pain rehabilitation programs typically consist of more intensive functional rehabilitation and medical care than their outpatient counterparts. They may be appropriate for patients who: (1) don't have the minimal functional capacity to participate effectively in an outpatient program; (2) have medical conditions that require more intensive oversight; (3) are receiving large amounts of medications necessitating medication weaning or detoxification; or (4) have complex medical or psychological diagnosis that benefit from more

intensive observation and/or additional consultation during the rehabilitation process. As with outpatient pain rehabilitation programs, the most effective programs combine intensive, daily biopsychosocial rehabilitation with a functional restoration approach.

### **The Concept of Delayed Recovery and Early Intervention**

Early identification and suitable management of patients exhibiting signs of delayed recovery is believed to be an effective method of decreasing the likelihood the patient will develop a chronic pain condition. A restricted but intense early prevention program of physical rehabilitation and education allows a patient to distinguish various obstructions to healing and the eventual return to work. These early intervention programs are helpful for those who show signs of an impeded or delayed recovery, and the need for instruction and psychological evaluation and intercession. The early intervention functional restoration programs are similar to the full time FR programs, but at a lower utilization, duration and cost than the full time FR treatment programs.

### **Multidisciplinary Evaluation (MDE)**

Fundamental elements of a functional restoration approach include assessment of the person's dynamic physical, functional, cultural and psychosocial status. This includes assessment of strength, sensation, range of motion, and endurance, as measures of what the individual can and cannot do, in terms of general activities of daily living, recreational and work related activities. Psychosocial strengths and stressors are assessed, including an analysis of the individual's support system, any history of childhood dysfunction or abuse, evidence of mood disorders or psychiatric comorbidity, assessment of education and skills, medication use, any history of substance abuse, presence of litigation, and work incapacity.

### **Major Components of Functional Restoration Treatment**

**Normalization of function:** Normalization of function is characterized as the re-establishment of independence and function, while understanding that some physical limitations may be unavoidable. Functional restoration empowers the individual to achieve maximal functional independence, the capacity to regain or maximize activities of daily living, and return to vocational and avocational activities. For physical limitations that are unavoidable, the patient should be instructed on assistive devices and modifications for the home, and/or the work place to allow them to achieve the highest level of function possible.

**Education:** At the beginning of any treatment, the patient's understanding and belief system of his or her prognosis and treatment must be ascertained. Information from multiple providers can often be misunderstood. Patients are often informed that nothing else can be done for them. Some are given lifting restrictions of no lifting or carrying greater than 10 lbs. post surgically, and they continue to adhere to these restrictions for years after the necessity has lapsed. The treating physician and/or physical or occupational therapists treating in an acute care model, may have informed the patient not to use the body part if it was painful. All of these can leave the patient with incorrect directions to how to best manage chronic pain.

Before the patient considers participating in a functional restoration program, he or she should be informed regarding the differences between functional restoration and other treatment methods. It is not uncommon for the patient to have seen multiple doctors and therapists without any benefit or with a worsening of symptoms. The patient may have little confidence that a functional restoration approach will be more effective than any of the other treatments that they have tried.

Education about diagnosis, prognosis and expectations concerning treatment and outcome should begin as soon as possible. Explanation of the changes to a patient's body, their personal experience, and how this translates to the symptoms they are experiencing is a connection that the provider must make with the patient. The patient must be provided with a confirmation that variability of symptoms and emotions are normal to their condition. The expectations concerning patient effort in the restoration process is emphasized. The active participation of the patient in the setting of treatment goals, his or her personal control of the process, and the success of the treatment are all important aspects contributing to the likelihood of successful completion of the restoration, and a return to normalcy. The patient must understand that treatment will provoke discomfort and may be perceived as painful, but that they will receive help with managing these symptoms, and that the outcome will be significant improvement in their overall functional level. Education regarding goals based on function, not pain changes, is important to assist the patient in feeling successful and attaining their goals as many patients believe that the focus of treatment is to simply reduce their pain level.

Finally, the patient must be educated about the negative consequences of inactivity and resting. A significant loss of flexibility, strength and secondary injury from guarding and abnormal movement are all possible, harmful consequences if the patient does not remain active after functional restoration therapy is complete.

**Fear of re-injury or movement:** Kinesiophobia, the fear of movement and re-injury, commonly obstructs the individuals return to work, a normal home life and leisure activities after an injury has occurred. Fear related to pain, and subsequent avoidance of activities, has been empirically validated as an important factor in determining the patient's activity levels at 6-12 month post-injury. Typically patients will push themselves to increase social and physical activities in an attempt to confront, and overcome the pain and disability of an injury. This may increase the pain, which increases the fear that an as-yet undiagnosed injury or illness is present. This fear may lead to a maladaptive avoidance response, which leads to lack of exercise and a physical de-conditioning; this leads to lack of muscle strength, flexibility, and an increase in pain and infirmity. The patient must then be re-exposed to previously avoided activities and assume a participatory role in the recovery process.

Treatment to overcome fear avoidance includes patient education, repeated exposure to activities that have been avoided, and taking responsibility in an active role to recovery. Patients are educated on how their beliefs and behaviors can lead to a vicious cycle involving catastrophic thoughts, fear, avoidance, disability and pain. The patient learns the difference between pain and damage, safe positioning, safe activity and slow progression of exercise. The activity program consists of the fearful activities initially at low levels and then progressed on an individual basis.

**Exposure Therapy:** Cognitive Behavioral Therapy (CBT) is used to expose an individual to fear-provoking stimuli. The bio-informational theory of fear states that activation of fear association, followed by the availability of new information refuting the fear expectations, is an intrinsic part of fear memory reduction. A therapy used to develop a hierarchy of fear-producing stimuli uses a photograph series of daily activities. In this therapy, patients judge the threat value of the various activities. The therapist then develops individually tailored practice tasks. The patient begins to perform the tasks, beginning with the least fear inducing tasks, gradually advancing through the hierarchy to the most fear inducing tasks.

**Flare-up Management:** Flare-ups, the seemingly uncontrolled, overwhelming symptoms of chronic pain can feel unmanageable. The physical reactions to these flare-ups include holding the breath, muscle tightening, tightening of chest and stomach muscles and nausea. Psychological reactions include fear,

anxiety, worry, feelings of being overwhelmed and anger. As these reactions take place, the pain level increases, generating further flare-ups.

Flare up management gives the patient active tools with which to control these symptoms. In the acute model, passive tools such as ice, heat, massage, TENS, rest and medications are used for pain control. These passive tools are not as effective with chronic pain and often leave the patient dependent on medical providers. Active tools allow for more independence and a feeling of control. Education on ways to both prevent flare-ups and managing a current flare-up provide the patient different ways to control his/her pain.

The patient is educated on a variety of tools from all different aspects including physical, emotional/behavioral, social, cognitive, spiritual and environmental (Hardin 2003). Teaching the patient how to perform diaphragmatic breathing through pain, using light stretching or exercise, and ways to pace their activity including setting limits and relaxation techniques, distraction and visual imagery are some examples, and are all useful tools. Allowing for multiple breaks during activities controls intensifying symptoms of anxiety, fear or any other unconstructive response. These breaks are used for deep breathing, relaxation, stretching and/or CBT to help the patient to become calm and relaxed, at which time they are able to resume their activities.

**Pacing:** Pacing is a tool allowing the patient to change the way they perform, or complete an exercise or activity, successfully increasing strength, tolerance and function, while managing pain levels. The purpose of pacing and goal setting is regulating daily activities and structuring an increase in tolerance by gradually increasing activity. Pacing activity requires the person to break an activity into active and rest periods. Rest periods are taken before significant increases in pain level occur. It provides structure to the overall activity level, guiding the individual to build an optimum schedule, minimizing pain and maximizing productivity during the day. Pacing also brings about structure to the day, giving the person a sense of control.

**Psychosocial Approaches:** Many behavioral and psychological variables intensify, and aggravate the pain and disability related to chronic pain conditions. These behavioral and psychological variables help maintain the chronic pain condition in some patients. An interdisciplinary approach addresses these variables, in an attempt to effectively manage the negative aspects associated with chronic pain. Anxiety, stress, communication skills, ideas about pain and coping methods are all associated with a patient's ability to successfully or unsuccessfully cope with pain. If patients have negative ideas about themselves and their chronic pain condition, these destructive feelings can spread to their home and families, they may in return lose the ability to enjoy constructive activities. This reinforces initial negative feelings, and causes the patient to become apathetic, depressed and anxious. The family relationships are negatively modified, responsibility and productivity decrease, and the pain cycle increases with the assimilation of the "sick role." The financial burden that accompanies the loss of productivity and the negative psychological and behavioral aspects of the chronic pain condition all contribute to a downward spiral affecting all aspects of a patient's existence. A functional restoration approach is designed to recognize all the factors that contribute to an individual's chronic pain experience, and to educate and support the patient to manage and alter those factors successfully. The group setting of a functional restoration program increases the feelings of companionship and solidarity with others who are experiencing similar changes. In addition, the use of psychological intervention approaches such as CBT, biofeedback, hypnosis, deep breathing, relaxation training and coping skills can all bring about positive change in a patient's existence.

**Psychological Interventions:** Cognitive behavioral therapy (CBT) is a form of psychotherapy that

combines features of both cognitive therapy and behavior therapy. This type of therapy emphasizes the important role of thoughts, and how automatic, but inaccurate thoughts or beliefs, in certain situations lead to negative moods unhealthy feelings and behaviors.

**Biofeedback:** Biofeedback is a technique in which people are trained to learn how to control certain internal bodily processes, normally occurring involuntarily, such as heart rate, blood pressure, muscle tension, and skin temperature. The results of biofeedback are measured by electromyography (EMG), which measures muscle tension, surface electrodes which measure the galvanic skin response, thermal biofeedback, which measures skin temperature, and an electrocardiograph (ECG) measuring heart rate, or an electroencephalograph (EEG) which measures brain-wave activity. The patient is then taught to use this information to gain control over these involuntary activities. Biofeedback is used in pain management, assisting the patient to recognize and control factors that aggravate pain. This technique also helps the patient learn the connections between emotions and health, improving a patient's awareness toward his or her own body. With biofeedback, patients are taught to recognize and release tension in their muscles, decrease stress response, control anxiety, slow breathing and heart rates and raise their skin temperature.

People with chronic pain typically have a dysfunctional breathing pattern, due to living with anxiety, tension, stress and pain. Abnormal breathing patterns can cause headaches, neck pain, shoulder pain, chest pain and upper back pain. The body, breath, and mind are linked, and if there are abnormal breath patterns, they are partly due to irregularities in the mind or body. Therefore, if irregularities are eliminated from the physical breath, it has an extremely beneficial effect on the mind as well. When the breath becomes smooth, continuous, slow, and quiet, the mind comes along, also becoming calm and peaceful. The body follows, relaxing much more easily. Diaphragmatic breathing techniques are used in all parts of a functional restoration program to educate and instruct the patient on an effective and active pain management skill.

**Physical Medicine Treatments:** The physician may use treatment options including medication or injections, and other invasive treatments, including surgery; therapists may employ treatment options including application of heat or cold, and traction in the treatment of chronic pain conditions. However, the ultimate goal is to teach the patient self-management techniques to decrease and eventually eliminate the reliance upon medical intervention with the ultimate goal of a successful return to work and productivity.

**Physical Fitness (Aerobic Conditioning, Strengthening, and Stretching):** Physical activity increases health and fitness, not only to injured body parts, but to the entire person. Exercise has been reported to improve the immune system, cardiovascular system, digestive functioning, decreased stress levels, improved sleep patterns and enhanced mood. These physically reactivating activities have the benefit of being adaptable to both home and group settings. Physical conditioning encourages socialization in group settings such as health clubs and walking tracks. These activities can also be modified to each individual's physical activity tolerance level.

Aerobic activities decrease pain, possibly through endorphin release. These activities also promote increased blood flow to the musculoskeletal system, warming muscle tissue, decreasing stiffness through joint lubrication, increasing circulation and improving muscle tissue health.

Stretching exercises allow the individual to successfully learn an important pain management tool, and a way for the patient to re-learn relaxed, not guarded, movement. Although research on the benefit for stretching for prevention of injury in a healthy individual is variable, it has an important role in pain



management. It is important that the patient learn proper stretching techniques, combined with breathing exercises to allow for benefit and not pain flares. Patients often report increased pain with stretching due to pushing too hard into muscle resistance and other range of motion restrictions. With simple modifications and relaxation techniques, stretching can be a useful and helpful tool.

Strengthening and stabilization exercises provide increased muscle tone, muscle strength gains, and normalization of demands placed on the body. Strength and stabilization gains allow decreased mechanical stress on passive structures, and a shift toward correct muscle usage patterns. Initially, the strengthening program must focus on exercising in a normal movement pattern, and not encouraging a learned abnormal pattern. An exercise program begins at a level that the patient can tolerate with only minimal and sometimes moderate pain flares. The exercise program is carefully balanced, as to avoid excessively aggravating activities involving the affected area, causing a prolonged worsening of symptoms rather than an improvement. This is a challenge to the treater and the patient, as one must distinguish between fear-avoidance and true harm with activity. The approach is often to find a happy medium, where activity and exercise while possibly uncomfortable, are not harmful but helpful. Flare management skills, especially pacing, are used to give the patient the pain control to continue with the program.

The program is then expanded and advanced slowly, to allow the individual to successfully complete the activities, encouraging their progression to more strength gains. Some examples of strengthening and stabilization tools include balance exercises, use of a physioball, foam roll, and functional exercise in all three planes of motion. Unlike machine-based exercises, functional exercises and exercises focused on stabilization challenge the patient's body to allow development of the necessary strength to negotiate daily activities.

For those with compromised joint function, and comorbid conditions that prevent weight bearing exercise, aquatic therapy show benefits in edema control and decrease in stress on affected joints while increasing aerobic capacity, muscle strength and flexibility.

Other treatments used include Tai Chi, yoga, Feldenkrais and gait training. Typically, a comprehensive program using a combination of all of these techniques looking to best fit each patient's needs and physical level.

**Postural Training:** Maintaining correct posture is more than just 'standing up straight'. It requires finding a balance between the head, trunk, pelvis and lower extremity; engaging the correct musculature, and maintaining this balance throughout different activities. Factors associated with postural issues include a long history of poor posture leading to an imbalance of muscle length and tone, compensatory postures, disuse syndromes and prolonged bed rest. Suffering from chronic pain can lead patients to prolonged bedrest, which causes the greatest loss of muscle strength in the postural and lower extremity musculature. Determining and maintaining the correct posture, with both static and dynamic activities, requires extensive external verbal and tactile cueing, an increased sense of body awareness, and an exercise program focused on correcting the muscular imbalance.

**Functional Activities:** A functional restoration program focuses on supporting and promoting a patient's ability to return to being a productive member of the community, the ability to enjoy leisure activities, and return successfully returning to family responsibilities. Functional activities such as lifting, carrying, pushing/pulling, and hand use and the activities performed in daily living and leisure activities are practiced. Treatment begins by helping the individual in assessing their current level of physical abilities in different areas. The patient then performs repetitive functional tasks, while being educated on abnormal or guarding physical movement patterns, and correct body mechanics. Flare up management, appropriate

pacing, and gradual development of ability is emphasized. Often patients are fearful of the specific activities that caused their injury, and overcoming this fear requires extensive education and instruction. Concurrent education on anatomy, physiology, mechanical stress on the affected structures with different tasks, and that pain does not always signal damage, assists the patient in working through their fear. As the patient improves, they are encouraged to assimilate these practices into their home environment, including recreational activities which also increase socialization, exercise and the utilization of free time.

**Wellness Therapies:** Wellness is defined by the American Physical Therapy Association as “A multidimensional state of being describing the existence of positive health in an individual as exemplified by quality of life and a sense of well-being.”

Wellness Therapies play a significant role in pain management and functional restoration. These techniques are used as flare management techniques, movement therapies, stress management skills and coping tools. Wellness therapies include a variety of physical and mind-based techniques.

There are many different forms of mind-body relaxation approaches for pain management, but they all have the underlying purpose of connecting the mind and body through breath, allowing the person to reach a higher state of relaxation. Some techniques commonly used include: imagery meditation, mindfulness based stress reduction, breathing exercises and progressive muscle relaxation.

Movement based wellness therapies, including Tai Chi & Qi Gong, provide a way to integrate relaxation into movement. Living with chronic pain can lead to guarding, muscle tension and abnormal movement patterns. In Tai Chi & Qigong, movements are performed slowly, with deliberate and smooth movement. The focus is on breathing and creating inner stillness -- quieting the mind, relaxing the body. This allows the patient to re-learn how to move without guarding and tension.

**Treatment of Secondary Conditions:** The potential for individuals suffering from a chronic pain condition to develop secondary conditions is great. Disuse syndromes, abnormal compensatory movement patterns, medications and depression can cause weight gain and secondary myofascial disorders. These disorders are amenable to treatment. Identification of a compensatory movement pattern during the physical therapy evaluation is important. Initial treatment must focus on re-normalizing movement, before strength gains or functional activity increases. It is not uncommon for the patient to either show minimal gains, or a decrease in current physical function, as they learn how to move in the correct pattern with normal muscle function. Nutrition counseling and education is helpful to combat the weight gain from secondary conditions. Drug, tobacco and alcohol use is addressed as individuals adapt and adopt a healthier lifestyle. Evaluation of any sexual difficulties, sleep disturbances or any other difficulties arising from depression, medication use, or the chronic pain syndrome should be addressed and treated.

**Changes to the Environment:** Properly adapting a patient's home and work environment, focusing on ergonomic issues and adaptive equipment in the home, and in the workplace can lessen the pain and disability suffered by the chronic pain patient. Although the condition that the individual endures may not change, it is of vital importance that we treat the environment to reduce the dysfunction to a minimum. This is done in order to assure the patient's ability to function successfully, thus ensuring their best possible emotional well being.

## **Summary**

Functional restoration (FR) is a patient-centered, whole-person, team approach which focuses on helping patients achieve individual goals, which enable them to improve physical and psychosocial function, decrease pain, and improve quality of life including return to work.